Early Draft only, Not to be Cited.
Prepared as a Briefing Paper to JAW Project

Drinking Water: Issues in Access and Equity

By C. Ramachandraiah

Introduction

The water-related diseases are claiming the lives of about 1.5 million children under 5 years and the person-days lost in India are estimated to be about 180-200 million a year (Krishnakumar, 2003; Parikh et al, 1999). In developing countries, of the 37 diseases identified as major causes of death, 21 are related to water and sanitation. Water-borne diseases are causing more than 4 million infants and child deaths every year in developing countries. The issue of quantity and quality of water thus becomes a fundamental basis of life (APPEN, 1998). The United Nations Economic and Social Council, Committee on Economic, Social and Cultural Rights, in its twenty-ninth session (General Comment No. 15), has explicitly declared right to water as a fundamental right under right to life and placed several obligations on State parties to ensure and enable the citizens to realize the right. It is clearly stated that safe drinking water is fundamental for life and health and it 'is a precondition for the realization of all human rights'. Every citizen is entitled 'to *safe, sufficient, affordable and accessible* (italics from the original) drinking water that is adequate for individual requirements'. Further, 'the manner of the realization of the right to drinking water must also be sustainable, ensuring that the right can be realized for present and future generations' (United Nations, 2002).

The Supreme Court of India recently reiterated again that 'the right to access to clean drinking water is fundamental to life and there is a duty on the state under Article 21 to provide clean drinking water to its citizens'.[1] The State is duty bound not only to provide adequate drinking water but also to protect water sources from pollution and encroachment. Any act of the State that allows pollution of a water body 'must be treated as arbitrary and contrary to public interest and in violation of the right to clean water under Article 21'.[2] For a detailed discussion on Right

[1] *A.P. Pollution Control Board II v Prof. M.V. Naidu and Others* (Civil Appeal Nos. 368-373 of 1999).
[2] The Court was dealing with, and prohibited, the setting up of a water polluting industry within 10 km radius of Osmansagar and Himayatsagar, the two water bodies that supply drinking water to Hyderabad city. The Court applied the 'precautionary principle' to protect these two water bodies.

to Water, see Ramachandraiah (2004). In recent years the bottled water or packaged water sector is considered to be one of the fastest growing business sectors in India. Several big Indian and multinational companies have entered into the water business sector in a big way. The growth rate of this sector is put in the range of 30-70 percent per year. The growth of this market is predicated upon the failure of the governments to provide clean drinking water to the citizens and the increase in demand for clean water due to environmental pollution (Shiva, 2002: 16-17; Sharma, 2002; *Down To Earth*, 15 February 2003; www.corpwatchindia.org).

Hyderabad: Growth and Water Issues

Growing Population and Expanding Boundaries

Much of the spatial expansion in the last two decades in the HUA has occurred in the surrounding municipalities. These towns recorded a high growth rate of 71 per cent in nineties as compared to only 18.7 per cent by the core city (MCH). Several of these towns have been growing at high rates from eighties onwards. Together, their share of population in the HUA has increased from about 23 to 30 per cent while there is a corresponding decline in that of the MCH (Table 1).

Table 1. Population and Growth of Different Components of Hyderabad Urban Agglomeration

Components of HUA	Area (sq.km) 2001	Population		Growth rate 1991-01	Density-persons/ sq.km 2001
		1991	2001		
A. Municipal Corporation of Hyderabad (MCH)	172.68 (22.2)	3043896 (69.8)	3612427 (63.2)	18.7	20920
B. Surrounding Municipalities					
1. Alwal	26.32	66471	93206	40.2	3541
2. Kapra	43.81	87747	159002	81.2	3629
3. Kukatpally	43.12	186963	292289	56.3	6779
4. L.B. Nagar	64.61	155514	268689	72.8	4159
5. Malkajgiri	16.75	127178	193863	52.4	11574
6. Qutbullapur	52.02	106591	231108	116.8	4443
7. Rajendranagar	50.87	84520	143240	69.5	2816
8. Serilingampally	96.99	72320	153364	112.1	1581
9. Uppal	21.97	75644	117217	55.0	5335
10. Gaddiannaram	2.12	35187	52835	50.2	24922
B. Total	418.58	998135	1704813	70.8	4073

	(53.8)	(22.9)	(29.8)		
C. Secunderabad Cantonment	40.17 (5.2)	171148 (3.9)	206102 (3.6)	20.4	5131
D. Osmania University	2.85	10153	11224	10.5	3938
E. Other Census towns					
1. Patancheru	15.06	26862	40273	49.9	2674
2. R.C. Puram	19.28	46129	52363	13.5	2716
3. R.C. Puram (BHEL)	11.21	17707	14815	-16.3	1322
4. Meerpet	4.04	5089	12935	154.2	3202
E. Total	49.59 (6.4)	95787 (2.2)	120386 (2.1)	25.7	2428
F. Out Growths (OGs)	94.38 (12.1)	44191 (1.0)	62028 (1.1)	40.4	657
Grand Total	778.17	4363310	5716980	31.0	7347

Note: 1. Figures in parentheses indicate percentage to Grand Total.
Source: 1. Census of India, Andhra Pradesh, Final Population Totals of 1991 and 2001.
2. HUDA (2003).

All the major components of the HUA (except Alwal) have a sex ratio that is less than the average figure for the urban areas of the State (Table 2). There is a significant variation in the figures between the adjacent towns of Serilingampally-Kukatpally, Malkajgiri-Kapra, L.B. Nagar-Gaddiannaram, and R.C. Puram-Patancheru. The factors that are responsible for such variations in the contiguously built-up areas around the metropolitan city needs a deeper examination and analysis. In terms of literacy, a few towns have lower figures than those of the MCH and AP-Urban for total population as well as females. It is surprising to see Rajendranagar showing the lowest figures in this regard. Two important centres of higher education and training are located in this municipality: A.N.G. R. Agricultural University and National Institute of Rural Development (NIRD). Another major town with low literacy but is having institutions of higher learning is Serilingampally. The University of Hyderabad (a central university) is located here.

From April 2007 onwards the city became Greater Hyderabad Municipal Corporation (GHMC) by merging the surrounding 12 municipalities with the MCH. The city is divided the city into (5) Zones (including North, South, Central, East and West) and 17 circles to provide better services and the city has grown from 175 sq.km to 650sq.km. In August 2008 the physical boundaries of

Table 2. Select Demographic Characteristics of the Components of the Hyderabad Urban Agglomeration: 2001

Components of the HUA	Sex Ratio	Literacy rate		Percentage of population	
		Total	Female	SC	ST
Hyderabad MCH	932	78.7	73.5	7.4	0.9
Serilingampally (M)	936	72.1	65.1	9.8	1.9
Kukatpally (M)	906	79.7	73.3	5.2	1.0
Qutubullapur (M)	915	75.5	67.4	6.5	1.0
Malkajgiri (M)	959	83.0	77.1	10.7	1.3
Kapra (M)	925	81.2	74.9	10.8	2.0
Uppal Kalan (M)	926	80.0	72.4	8.0	0.8
Lal Bahadur Nagar (M)	938	80.5	74.1	8.3	1.6
Rajendranagar (M)	913	62.4	53.9	10.4	1.2
Alwal (M)	965	81.8	74.9	24.1	0.9
Gaddiannaram (CT)	905	88.2	82.4	2.5	0.9
Meerpet (CT)	957	70.2	61.1	22.6	4.8
Patancheru (CT)	889	75.1	66.0	9.5	1.1
R C Puram	938	77.9	70.2	12.3	0.8
AP-Urban	**965**	**76.1**	**68.7**	**10.2**	**1.8**

Note: Secunderabad Cantonment, Osmania University and R C Puram (BHEL) are excluded from the analysis.

Source: Primary Census Abstract, 2001.

Hyderabad were enlarged to a vast area of 6,856 square km by replacing HUDA with the Hyderabad Metropolitan Development Authority (HMDA). The population size has increased to 7.8 million from 6.5 million in HUDA area. The jurisdiction of HMDA covers 54 revenue mandals (administrative blocks) in the five districts: 16 of Hyderabad, 10 of Medak, 22 of Rangareddy, 2 of Mahbubnagar and 4 of Nalgonda. As many as 849 villages of four districts were merged with Hyderabad as part of HMDA, which is now the second largest metropolitan area in the country after Delhi.[3]

Water Supply and Sanitation

Within the HUA, there is a significant variation between the MCH and the surrounding municipalities in the location of the main source of water supply within the premises of households based on Census data. It varies from a high of 88.6 per cent in Patancheru and 84 per cent in MCH

[3] "Greater Hyderabad India's second largest metropolitan area", (Source: www.newindpress.com accessed on 24 August 2008).

to as low as 37 per cent in Rajendranagar (Table 3). In several of the municipalities the main source is located outside the premises for a substantial proportion of the households. While 93 per cent of households depend on tap in MCH area, the same is only about 50 per cent in Malkajgiri and Rajendranagar. Gaddiannaram, which has 96 per cent of households getting tap water, is the smallest municipality in size in the state of Andhra Pradesh, with only 2.12 sq.km of area. In Alwar, Qutbullapur and Kapra, this figure is in the range of 60-70 per cent. The Hyderabad Metropolitan Water Supply and Sewerage Board (HMWSSB) is the main agency supplying water. Its operations have been largely confined to the MCH area. Only in recent years, it has started

Table 3: Water Supply by Source and Location at Household Level in Hyderabad Urban Agglomeration: 2001

Components of HUA	Total and location	All sources	Source of water supply (per cent)			
			Tap	Handpump	Tubewell	Others
Hyderabad (M Corp.)	Total	100.0	93.1	2.6	1.2	3.2
	Within Premises	83.9	87.8	29.8	67.0	
Serilingampalle	Total	100.0	70.9	13.1	9.4	6.6
	Within Premises	57.3	69.5	10.0	56.1	
Kukatpally	Total	100.0	85.1	6.8	5.3	2.7
	Within Premises	66.6	71.3	25.2	66.9	
Qutubullapur	Total	100.0	64.1	11.1	8.1	16.8
	Within Premises	53.5	74.3	10.3	34.7	
Alwal	Total	100.0	61.1	13.6	15.2	10.1
	Within Premises	59.5	70.4	27.6	55.3	
Malkajgiri	Total	100.0	49.4	12.8	20.2	17.6
	Within Premises	56.7	62.1	57.0	58.1	
Kapra	Total	100.0	67.4	7.9	8.4	16.2
	Within Premises	67.0	84.2	31.7	51.9	
Uppal Kalan	Total	100.0	82.3	4.3	6.1	7.3
	Within Premises	72.2	78.8	45.6	47.6	
Gaddiannaram	Total	100.0	95.6	1.6	1.8	1.0
	Within Premises	96.1	98.4	8.4	82.1	
L. B. Nagar	Total	100.0	60.7	9.2	22.4	7.7
	Within Premises	62.4	76.0	20.6	62.4	
Rajendranagar	Total	100.0	50.0	17.2	11.9	20.9
	Within Premises	37.0	59.5	13.8	33.2	
Patancheru	Total	100.0	95.9	0.9	1.2	1.9
	Within Premises	88.6	89.4	24.1	96.2	
R.C. Puram	Total	100.0	91.9	1.3	4.4	2.3
	Within Premises	76.6	79.5	30.2	51.1	

Source: Census of India, 2001, Andhra Pradesh, Household Amenities.

supplying water in the surrounding areas. In terms of location of the source of water, the tap is within the premises for over 80 per cent of households in Gaddiannaram, MCH and Uppal Kalan. Once the main source is located outside the premises of the household, fetching water involves carrying the load, walking and waiting time. Of the 11 towns in Telangana region in which the shortage in water supply is considered to be above 50 per cent, eight towns are located around Hyderabad city within the urban agglomeration (Ramachandraiah, 2003). The condition of drinking water facility in the peripheries of Hyderabad city presents a depressing scenario.

Percentage of households with better toilet facilities is low in three towns – Serilingampally, Rajendranagar and R.C. Puram – all of which are located farther from the MCH (Table 4). It may be also noted that the towns with lower figures for latrines also have high percentage of households with open or no drainage category. Even where toilet facilities exist to a certain extent, there are no proper drainage facilities. Over half of the households have their wastewater outlets connected to open drainage in Rajendranagar and Qutbullapur. Overflowing drainage in the open appears as a common feature in several of the municipalities. The percentage of slum population is also substantial in those municipalities which have poor drainage facilities.

Table 4: Sanitation and Drainage Facilities in Hyderabad Urban Agglomeration: 2001

Components of HUA	Percentage of households with a latrine within the house*	Type of connectivity for waste water outlet		Per cent of population in slums
		Open drainage	No drainage	
MCH	96.1	4.1	4.4	17.4
Serilingampalle	76.3	30.1	19.6	49.1
Kukatpally	93.7	24.7	6.6	6.7
Qutubullapur	87.2	52.7	18.4	61.3
Alwal	86.2	43.9	17.9	58.8
Malkajgiri	95.5	36.9	10.5	27.1
Kapra	85.7	41.4	11.8	29.6
Uppal Kalan	97.0	47.4	15.8	36.9
Gaddiannaram	98.8	3.2	1.3	N A
L. B. Nagar	95.2	26.0	19.1	9.0
Rajendranagar	83.5	46.8	34.4	58.9
Patancheru	89.8	46.2	6.8	N A
R C Puram	81.1	50.6	6.4	N A

Note: Per cent of slum population in HUA is 21.2.

* Type of latrine: pit, water closet, other latrine.

Source: Same as in Table 3 and Paper 2 of 2001 (Rural Urban Distribution)

One of the starkest realities of place inequality within the Municipal Corporation of Hyderabad (later expanded as Greater Hyderabad Municipal Corporation) is contaminated water supply in poor localities and deaths caused because of it. Information available at the Ronald Ross Institute of Tropical Diseases, popularly known as Fever Hospital, in the city indicates that diarrhea and viral pyrexia/fever are the two major causes of hospitalization of the poor. Both these diseases are related to lack of clean drinking water and poor sanitation. There are 14 diseases which are accounting for over 90 percent of the morbidity cases and even a higher share of deaths. This is a major referral hospital for infectious diseases for the poor and low-income people. The patients thus hail from areas beyond the MCH also. The information pertains to five years from 2001 until September 2006 (Prasad and Ramachandraiah, 2007).

The City Development Plan, prepared by MCH, notes that the "environmental conditions in slums are very poor and lack basic civic amenities like dust proof roads, drainage, protected water supply, street lights and adequate number of community toilets". It is further noted that the "common diseases prevalent in slums in Hyderabad are gastro-enteritis, dysentery, liver enlargement, malnutrition, ringworm, scabies and other skin diseases. To overcome these hazards health infrastructure was developed and 64 urban primary health centres were established under IPP VIII. Most of the slum communities and the poor access the services from these centres. However in surrounding municipalities such facilities are not available" (Hyderabad City Development Plan, pp.69-70, Municipal Corporation of Hyderabad, Source: www.ourmch.com accessed in November 2006).

One instance that became headlines in May 2009 occurred in Bholakpur (Ward 92) in which 16 people died and several hundred hospitalized due to contaminated water (Box 1).

Box. 1: Bholakpur – Drinking Water…… to Death

Bholakpur, a locality with nearly 2.5 lakh population in Hyderabad city, was in the news for deadly water contamination deaths in the first week of May 2009. With the outbreak of gastroenteritis 16 people died and more than 400 persons were admitted to various hospitals especially Gandhi Hospital and Fever Hospital in the city.

Bholakpur symbolizes the stark inequity in Indian megacities in the provision of basic amenities. It is not a newly emerging slum or a squatter settlement. It dates back to the 1950s and is located along the road that separates Hyderabad and Secunderabad, and is a short distance from the five-star Hotel Marriot.

Nearly 55 per cent of the population is Muslims. There has never been any communal tension in the area. The locality has a considerable number of families which migrated from Karnataka, Orissa, Maharashtra and Tamil Nadu some decades ago. Even Bangladeshis live here. Bholakpur's claim to infamy in the last one decade has been due to the pollution caused by a large number of tanneries in the area. With as many as 11 notified slums, sanitation has always been a problem in Bholakpur. But there are lower-middle class localities as well as developed colonies here. The narrow dingy lanes, the garbage lying uncleared at several places and overflowing drains paint a picture of neglect.

The government tried to blame the pollutants released by the tanneries for water contamination. The officials argued that it is due to the presence of a large number of unauthorised tanneries in the area that pollute the water when animal skins and other raw materials are buried in the soil to preserve them. The chemicals then corrode the water pipelines, argue the officials. It appeared that the Hyderabad Metropolitan Water Supply and Sewerage Board (HMWSSB) was alerted four times in the previous four months about the presence of deadly contaminants in the drinking water supplied to Bholakpur. But the Board did not bother to act on the reports of potable water tests done by the Institute of Preventive Medicine (IPM) and Institute of Health Systems (IHS) that had informed them of the presence of fecal contamination in the drinking water each time it was tested in those four months. Agencies that sent their reports to the Board received the standard "action taken report'' each month stating that corrective measures had been taken. E-coli was found in the samples. On an average, 15 to 20 per cent of the water samples collected by IPM from various parts of the city test positive for E-coli contamination. The IPM director says that this figure has on some occasions gone up to 30 per cent.

Residents rue that the problem of water borne diseases in this area, which has become a norm every summer, and is primarily because of drainage water leaking into drinking water pipes with both lines running close to each other. They claim that several complaints filed with the authorities concerned and local representatives have failed to yield any result. The cases of gastroenteritis due to contaminated water were occuring for the last one week and were reported to the Water Board but "they just wouldn't listen to us,'' says a man. (Part of the information sourced from the *Times of India*, Hyderabad, 6th and7th May 2009). (Shaw, A. and C. Ramachandraiah (forthcoming). With great difficulty the water board has replaced 122 km of the 591 km pipeline identified in the wake of the Bholakpur tragedy to check pollution (J.S. Ifthekhar, "Meters soon to gauge water wastage", *The Hindu*, 20 December 2010).

Table 6: Water Drawals from Different Sources

Sl. No.	Source	Year Commissioned	Normal drawals (in MGD)
1	Osmansagar	1920	25
2	Himayathsagar	1927	15
3	Manjira Barrage (Phase I & II)	1965 & 1981	45
4	Singur Dam (Phase III & IV)	1991 & 1993	75
5	Krishna Project	2004 & 2007	180
Total from all sources			340

Source: HMWSSB.

In the south-west monsoon period in 2010 there was a good rainfall and all the water bodies in and around Hyderabad became full to the brim. Yet, it was not possible to implement the daily water supply scheme in the city because the pumping capacity and distribution pipeline capacity remains the same as before. A quantum of 438 mgd is required to supply water to each connection under GHMC limits. Of this, 348 MGD is being supplied due to limitations in pumping and distribution pipeline capacity. To overcome this deficit in supply, a Rs. 3,800-crore Godavari project is planned to be completed in two years ("GHMC, water board merger?", *The Hindu*, 7 November 2010).

The water board has no idea how much water is lost due to leakages with 50 per cent of the water unaccounted for as against the international standard of not more than 15 per cent. The authorities have now decided to install meters at section levels to measure the quantum of supplies made to a particular geographical location. The meters are expected to be installed in all the 100 sections in the 16 Operation & Maintenance Divisions which will send hourly signals to the central server at the head office (J.S. Ifthekhar, "Meters soon to gauge water wastage", *The Hindu*, 20 December 2010).

Table 7: Water Supply Demand Projections

Year	Population (Lakhs)	Water Demand (in Mgd)
2006	67.40	325
2011	77.20	394
2016	93.00	489
2021	109.00	585
2031	118.10	651

Source: HMWSSB.

In the official meetings in Hyderabad, the message that comes out loudly is that the municipal water is unfit for consumption by VIPs and good only for commoners. Bottles of mineral water dot the tables in the official meetings and conferences participated by the Chief Minister, Ministers, and senior officials even when the municipal water is available. The top brass of the Water Board itself is seen at several meetings taking the gulp from the bottle in preference to Osmansagar and Manjira water, their home products (M. Malleswara Rao, "Unfit for elite, fit for ordinary?", *The Hindu*, July 11, 2003).

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